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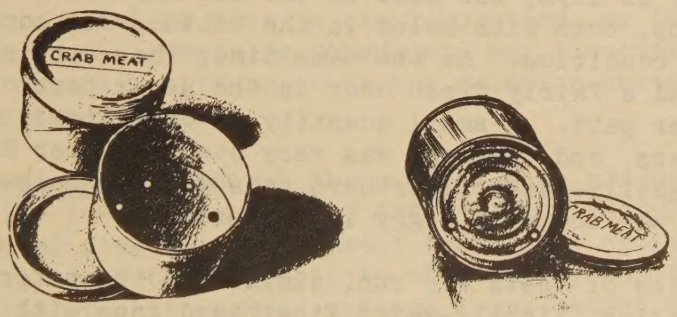
KEEPING QUALITY OF EAST COAST CRAB MEAT IN FIBERBOARD CONTAINERS AND IN TIN CANS

By S. R. Pottinger*

With the increased usage of heavily-waxed fiberboard containers brought about by restrictions placed on the use of metal during World War II, the question arose regarding the keeping quality of fresh cooked East Coast crab meat packed in these containers. During a survey of crab meat dealers in several large cities, the complaint was heard that the meat does not remain in a fresh condition for as long a period in heavily-waxed fiberboard containers as in tin cans, especially when shipped in very warm weather. On the other hand, a number of dealers reported the crab meat to keep equally well in either type of container.



In view of this disagreement of opinion among the handlers of fresh cooked crab meat, and as a phase of the general container investigation, preliminary tests were conducted to determine whether the storage life of properly refrigerated fresh-cooked East Coast crab meat is affected by packing in fiberboard containers. In addition to the heavily-waxed fiberboard crab meat containers, the effect of other types of containers was also studied. One-pound size containers were used in all tests.

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Laboratory Tests--Fresh-cooked crab meat was obtained directly from the picking table of a nearby crab meat packing house and placed in the following containers:

1. Heavily-waxed fiberboard crab meat cans with holes in bottom;

2. Tin crab meat cans with holes in bottom;

3. Lightly-waxed fiberboard crab meat cans without holes in bottom;

4. Heavily-waxed fiberboard crab meat cans without holes in bottom;

5. Hermetically-sealed tin cans.

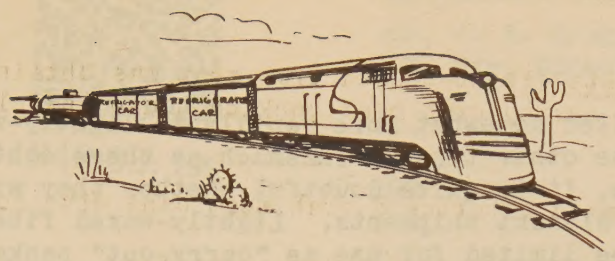
The cans were placed immediately in crushed ice, brought to the laboratory, and held in ice until the meat was no longer considered to be in a fresh condition, organoleptically. Additional containers filled with crab meat were included for opening at intervals to determine the approximate condition of the meat and to indicate the time at which the cans under test should be examined.

At the end of 15 days of storage, the meat was still in a fresh condition in all unsealed cans; the hermetically-sealed cans were not examined at this time. After 17 days, the meat in the lightly-waxed fiberboard cans without holes was found to be slightly sour. The fiberboard was quite watersoaked and soft, and the meat was somewhat soggy. The meat in the remaining cans was still fresh.

At the end of 19 days, the meat in the heavily-waxed fiberboard containers and in the tin cans, both with holes in the bottom, was considered as being no longer in a fresh condition. At the same time, the meat in the hermetically-sealed tin cans had a fairly fresh odor in the upper part of the cans but was putrid in the lower part. A small quantity of free liquid was present in the bottom of these cans, and the meat was very soggy. After 20 days of storage the meat in the heavily-waxed fiberboard cans without holes in the bottom was slightly sour and was somewhat soggy in texture.

A second series of tests was run, similar to the before-mentioned, but including, in addition, lightly-waxed fiberboard cans with holes in the bottom. Unfortunately, the crab meat used in this series was afterwards found to be grossly contaminated, and therefore of questionable quality for use in tests of this nature. The test was continued, however, until the meat showed signs of spoilage, organoleptically.

There was no indication of spoilage occurring until the twelfth day of storage, at which time the meat in all of the cans had a slightly sour odor and was rather soft. No difference was noted in the odor of the meat in the top and bottom parts of the hermetically-sealed cans. A small quantity of free liquid was present in the bottom of these cans.



Shipping Test--In order to obtain information regarding the effect on the keeping quality of shipping crab meat in fiberboard and in tin containers, a shipment was made from a packing house in Biloxi, Mississippi, to the laboratory at College Park, Maryland. The crab meat was obtained directly from the picking table and placed in five heavily-waxed fiberboard crab meat containers and five tin crab meat cans containing one pound each, under the supervision of a Service technologist. Shipment was made in the usual commercial manner. The meat was in transit two days.

Upon arrival at the laboratory, the cans were found to be reasonably well iced. The average temperature of the meat at the center of the fiberboard cans was 37° F. and in the tin cans, 36° F.; near the walls of the cans the average temperature was 38° F. and 39° F., respectively. The meat was in good condition in all of the cans. They were immediately packed in crushed ice in the laboratory and held for further examination.

After being held in storage for ten days, slight spoilage of the meat was apparent in one fiberboard and one metal can. The meat in the remainder of the cans was still fresh. After 14 days in the laboratory, or 16 days from the time of packing, the meat in the remaining fiberboard and tin cans had become slightly sour. There was no apparent difference in the relative state of freshness of the crab meat in the two types of cans.

Discussion and Summary--Although these tests were conducted primarily to determine the relative keeping quality of fresh-cooked East Coast crab meat packed in heavily-waxed fiberboard crab meat containers and in tin crab meat cans, some indication as to the suitability of other types of containers was also obtained. The results of shipping and storage tests showed no appreciable difference in the keeping quality of crab meat packed in heavily-waxed fiberboard and in tin crab meat cans, both with holes in the bottom, and in heavily-waxed fiberboard cans without holes in the bottom.

While it was found, as a result of one test, that the meat in the upper part of the hermetically-sealed cans remained fresh longer than that in the regular type of crab meat cans, the meat in the lower part was, at the same time, in an advanced state of spoilage. Free liquid found in the bottom part of these cans may be a factor in causing this spoilage, as a number of crab meat packers have stated that proper drainage of the meat in the cans is essential in order to prevent rapid souring.

The meat spoiled somewhat more rapidly in lightly-waxed fiberboard containers than in the other types. Inasmuch as these containers soften rapidly when packed in ice, it is quite doubtful whether they will be used for packaging crab meat for distant shipments. Lightly-waxed fiberboard cans will at best most likely be limited for use as "carry-out" packages, and hence will not be involved in lengthy storage of the meat.

Due presumably to poor quality crab meat which was used in one series of tests, results were obtained which were somewhat different from those obtained in a previous test. However, the results of the tests, in general, indicate that East Coast crab meat remains fresh equally as long in heavily-waxed fiberboard crab meat containers as in tin crab meat cans when kept thoroughly covered with ice.

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